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The Modern Construction Solutions

[illegible], MIG-A Sector, Opp. Rajhebeel Factory,
Yelahanka New Town, Bangalore - 64
Ph : [illegible] | Email : aartnassociates@gmail.com

Test Results of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-3 &39	Date: 26/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengaluru Mahanagara Palike (BBMP) Yelahanka Zone,Bengaluru.
Contractor	B.S (Infra) (S.M.L.P supplier)
Customer Reference	EE/PROJECT/YNK ZONE/WO/17/2021-22
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	26/07/2021
Location	

Description of materials:		GSB-4	
MDD (gm/cc) =	2.160	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	385.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

Sl. no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm.	2412.3	2400.5
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5288.6	5298.9
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1485	1468.7
5	Volume of sand in hole (V = W5/Y sand)	1071.884698	1065.02
6	Bulk density (gm/cc) (Yb= W2/V)	2.251	2.254
7	Moisture meter reading (%)	3.25	3.15
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.154	2.147
9	Degree of compaction achieved. (%) (Yd/mdd)*100)	98.81	98.47
10	Required degree of compaction. (%) As per MORT&H 5th specification.	98.64	

Remarks Found to be Satisfactory.

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Reults of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29	Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2405.3	2407.2
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5283.7	5301.5
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1500.9	1483.1
5	Volume of sand in hole (V = W5/Ysand)	1075.91	1063.15
6	Bulk density (gm/cc) (Yb= W2/v)	2.236	2.264
7	Moisture meter reading (%)	5.20	5.35
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.139	2.156
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	**98.13**	**98.92**
10	Required degree of compaction, (%) ,As per MORT&H 5th specification	**98.53**	

Remarks:Found to be Satisfactory.

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#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Reults of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29	Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2420.2	2402.6
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5285.2	5299.6
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1499.4	1485
5	Volume of sand in hole (V = W5/Ysand)	1074.84	1064.52
6	Bulk density (gm/cc) (Yb= W2/v)	2.252	2.257
7	Moisture meter reading (%)	5.50	5.40
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.155	2.150
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	**98.84**	**98.60**
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	**98.78**	

Remarks: Found to be Satisfactory.

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Reults of Gradation for GSB (Granular Sub Base)

IS: 2386 Part-8 &29	Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021
Location	

Description of materials:	GSB-V		
MDD (gm/cc) =	2.180	OMC(%) =	5.20
Bulk Density of sand:	1.395	Sand retained in cone (gm)=	395.4

FIELD DENSITY BY SAND REPLACEMENT METHOD

SL.no	Particulars	S-1	S-2
1	Wt of soil from hole (w2) gm:	2420.2	2402.6
2	Wt of sand + cylinder before pouring(gm) (w3)	7180	7180
3	Wt of sand+ cylinder after pouring (gm)(w4)	5285.2	5299.6
4	Wt of sand in hole (gm)(w5= w3-w4-w1)	1499.4	1485
5	Volume of sand in hole (V = W5/Ysand)	1074.84	1064.52
6	Bulk density (gm/cc) (Yb= W2/v)	2.252	2.257
7	Moisture meter reading (%)	5.50	5.40
8	Dry density (g/cc) Yd = Yb /(1 + w/100)	2.155	2.150
9	Degree of compaction achieved, (%) (Yd/mdd)*100)	**98.84**	**98.60**
10	Required degree of compaction, (%) ,As per MORT&H 5th specification.	**98.72**	

Remarks:Found to be Satisfactory.

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#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Reults of Gradation for GSB (Granular Sub Base)

MORT&H (Section 400, Table 400-1) | Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) ,Yelahanka Zone,Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Type of Mix	Coarse Aggregate for GSB (Granular Sub Base)-Grading V
Date of Test	07/08/2021
Total wt of the sample (gms):	11000

IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per MORTH (Table 400-1)	Remarks
75	0	0	0.0	100	100	Satisfactory
53	315	315	2.9	97.1	80-100	Satisfactory
26.5	2259	2574	23.4	76.6	55-90	Satisfactory
9.5	2179	4753	43.2	56.8	35-65	Satisfactory
4.75	2251	7004	63.7	36.3	25-50	Satisfactory
2.36	1820	8824	80.2	19.8	10-20	Satisfactory
0.85	1212	10036	91.2	8.8	2-10	Satisfactory
0.425	911	10947	99.5	0.5	0-5	Satisfactory

Remarks: Satisfactory

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Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Aggregate Impact Value

IS: 2386 Part-IV | Date: 07/08/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate for GSB (Granular Sub Base)
Date of Test	07/08/2021

Sl. No	Particulars of Observations	Index	Test-1	Test-2
1	Total weight of the surface dry sample (passing 12.5mm and retained on 10mm sieve)	A	300.1	300.5
2	Weight of fraction passing 2.36 mm sieve after giving 15 blows	B	73.9	74
3	Weight of fraction passing 2.36 mm sieve after giving 15 blows	C	225.9	225.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made	A-(B+C)	0.3	0.6
5	Aggregate impact value	(B/A)x100	24.63	24.63
6	Aggregate impact value (Mean of two tests)	Percentage	24.63	

Remarks :

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The Modern Construction Solutions

#1004, MIG - A Sector, Opp. Ballotted Factory,
Yelahanka New Town, Bangalore - 64
Ph : 9845000000 | Email : aarthassociates@gmail.com

Test Report of Physical Properties of Cement 53 Grade

Name of Work : Comprehensive Development works in ward No: 05 &Other

Client	Bruhat Bengaluru Mahanagara Palike (BBMP) , Yelahanka Zone, Bangalore
Contractor	B.R Umesh (S.M.I.P Asphalts)
Customer Reference	EE/PRO.BC/ Cyber Z/ABB/WO/170/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Bora Super 53-Grade
Date of Test	09/07/2021
Environmental Condition during test	Temperature: 28°C Humidity: 72%

Test Results

Sl. No	Physical Properties	Result	Requirements as per IS 12269-2013
1	Finess by dry sieving (%)	1.96	-
2	Finess by Air permiability method (m^2/kg, Min)	355.4	225 m^2
3	Density, (gm/cm)	3.12	-
4	Standard Consistency (%)	29.50%	Not Specified
5	Initial Setting time	145 Minutes	Not less than 30 minutes
6	Final Setting Time	240 Minutes	Not more than 15 minutes
7	Soundness (Le Chatellers Method)	1.5 mm	Not more than 10 mm

Remarks

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#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Physical Properties of Cement-53 Grade

IS: 12269-2013, IS: 4031(Part-4,6)-1988 | Date: 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Birla Super 53-Grade
Date of Test	09/07/2021
Environmental Condition during test	Temperature: 26°C
	Humidity: 72%

Compressive Strength

Sl. No	Physical Properties	Result	Requirements as per IS: 12269-2013
1	3 Days	28.5 N/mm^2	Not less than 27 N/mm2
2	7 Days	39.0 N/mm^2	Not less than 37 N/mm2
3	28 Days	58.5 N/mm^2	Not less than 53 N/mm2

Remarks :

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#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed 2012) Date 09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	09/07/2021

Total wt of the sample (gms):			1000					
IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifications as per IS: 383-2016			
					Grading Zone-1	Grading Zone-2	Grading Zone-3	Grading Zone-4
10	0	0	0.0	100	100	100	100	100
4.75	27	27	2.7	97.3	90-100	90-100	90-100	95-100
2.36	55	82	8.2	91.8	60-95	75-100	85-100	95-100
1.18	239	321	32.1	67.9	30-70	55-90	75-100	90-100
600	205	526	52.6	47.4	15-34	35-59	60-79	80-100
300	203	729	72.9	27.1	5-20	8-30	12-40	15-50
150	191	920	92.0	8.0	0-10	0-10	0-10	0-15
PAN	80	1000	100.0	0.0	-	-	-	-

Result: The Tested Sample Conforms to Grading Zone-II

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)	Date:	09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Fine Aggregate
Date of Test	09/07/2021

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Water Absorption (%)	1.50	-
2	Specific Gravity	2.59	-
3	Material Finer tha 75 micron (%)	6.90	Uncrushed fine Aggregate Max 3% Crushed Fine Aggregate Max 15% Mixed Fine Aggregate Max 12% Manufacture Fine Aggregate Max 10%

Remarks :

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Coarse Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)	Date:	09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Sieve Analysis (Particle Size Distribution) of 20mm Down Coarse Aggregate

Total wt of the sample (gms):			5000		
IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
40	0	0	0.0	100	100
20	245	245	4.9	95.1	90-100
10	2560	2805	56.1	43.9	20-55
4.75	2033	4838	96.8	3.2	0-10
PAN	162	5000	100.0	0.0	-

Remarks :

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The Modern Construction Solutions

#1099, MIG - A Sector, Opp. Rathnavali Factory,
Yelahanka New Town, Bangalore - 64
Ph : 9986020999 | Email : aartnassociates@gmail.com

Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-I, 3)-1963 (Reaffirmed: 2012)

Date : 08/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bangalore Mahanagara Palike (BBMP), Yelahanka Zone, Bangalore.
Contractor	S. B. Umesh (S.M.C.) Kashyap
Customer Reference	[illegible]
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	08/07/2021

Physical Properties

Sl. No.	Physical Properties	Result	Requirements as per IS: 383-2016
1	Flakiness Index (%)	13.50	Combined Flakiness and Elongation index shall not exceed 40% for uncrushed and crushed aggregate.
2	Elongation Index (%)	12.6	
3	Specific Gravity	2.68	-
4	Bulk Density (Loose) (Kg/l)	1.54	-
5	Bulk Density (Compacted) (Kg/l)	1.68	-
6	Water Absorption (%)	0.23	-
7	Aggregate Crushing Value (%)	24.50	Max 30% for Aggregates to be used in concrete for wearing surfaces. In case aggregate Crushing Value exceeds 30% then the test for 10% fines should be conducted for aggregate to be used in concrete oter tha for wearing surfaces
8	Aggregate Impact Value (%)	22.80	Max 30% for aggregate to be used in concrete for wearing surfaces. 45% for aggregate to be used in concrete other than for wearing surface.

Remarks

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The Modern Construction Solutions

#1859, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048908903 | Email : aartnassociates@gmail.com

Test Report of Coarse Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3 & 4)-1963 (Reaffirmed-2012)	Date:	09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Sieve Analysis (Particle Size Distribution) of 40mm Down Coarse Aggregate

Total wt of the sample (gms):			15000		
IS Sieve size (mm)	Weight retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specifcations as per IS: 383-2016
80	0	0	0	100	100
40	244	244	1.6	98.4	90-100
20	5432	5676	37.8	62.2	30-70
10	4332	10008	66.7	33.3	10-35
4.75	4654	14662	97.7	2.3	0-5
PAN	338	15000	100.0	0.0	-

Remarks :

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Report of Fine Aggregate

IS: 383-2016, IS: 2386 (Part-1, 3)-1963 (Reaffirmed-2012)	Date:	09/07/2021

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Condition	Satisfactory
Sample Type	Coarse Aggregate
Date of Test	09/07/2021

Physical Properties

Sl. No	Physical Properties	Result	Requirements as per IS: 386-2016
1	Flakines Index (%)	12.40	Combined Flakiness and Elongation Index ahall nor exceed 40% for uncrushed and crushed aggregate
2	Elongation Index (%)	11.8	
3	Specific Gravity	2.68	-
4	Bulk Density (Loose) (Kg/l)	1.48	-
5	Bulk Density (Composed) (Kg/l)	1.52	-
6	Water Absorption (%)	0.22	-

Remarks :

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048405503 | Email : aartnassociates@gmail.com

Test Result of Grain Size Analysis

(IS : 2720 Part -4) | Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Refe	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sam	Sample supplied by Agency
Sample Type	Soil-Grain Size Analysis
Date of Test	30/12/2020

Weight before wash (gm) : 1000 Weight after wash (gm) :

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative (%) of Retained (gm)	Cumulative (%) of Passing (gm)	Remarks
75 mm	0	0	0	100	
20 mm	0	0	0	100	
4.75 mm	6.7	6.7	0.67	99.33	
2 mm	119.54	126.24	12.62	87.38	
425 m	204.5	330.74	33.07	66.93	
75 m	185.54	516.28	51.63	48.37	
Pan					
TOTAL					

OBSERVATION SHEET

DESCRIPTION PARTICAL		SIEVE SIZE	PERCENTAGE	Total %
Gravel	Coarse	75 mm - 20 mm	0.00	0.67
	Fine	20 mm - 4.75 mm	0.67	
Sand	Coarse	4.75 mm - 2 mm	11.95	50.96
	Medium	2 mm - 0.425 mm	13.23	
	Fine	0.425 mm - 0.075 mm	28.25	
Silt & Clay		0.075 mm Passing	48.37	48.37

Remarks :

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

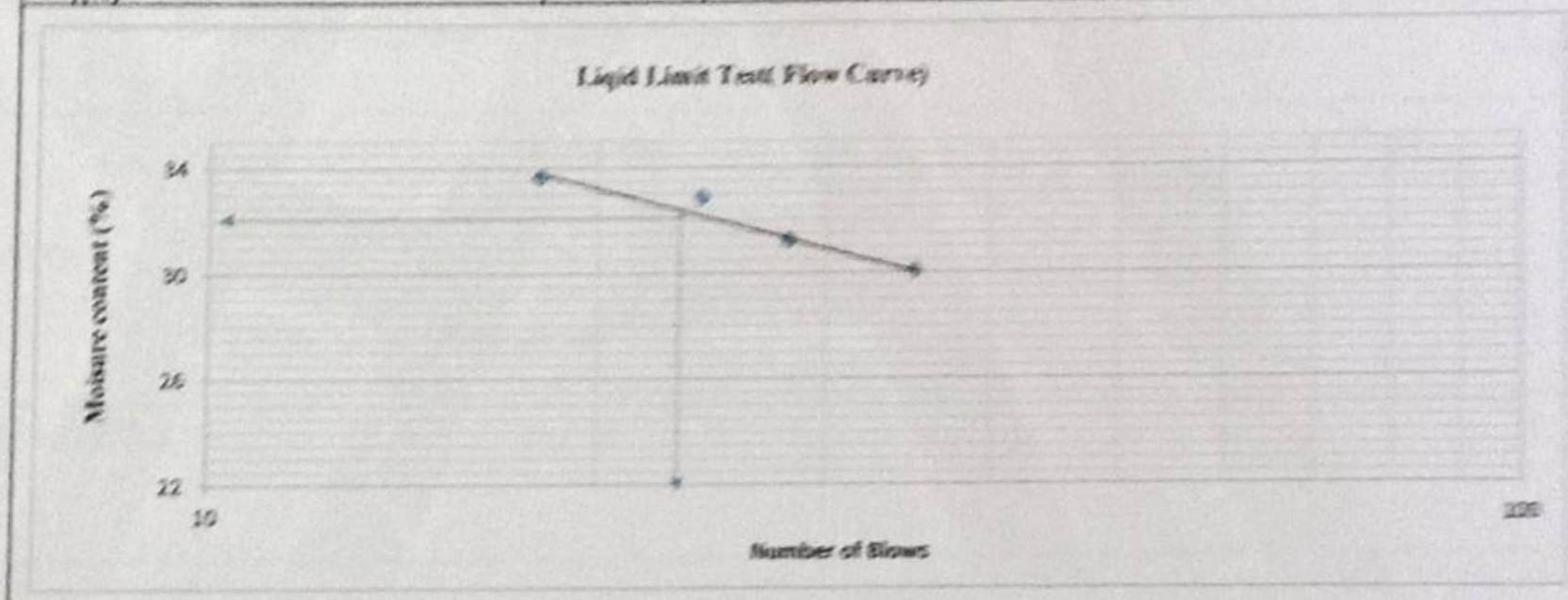
Test Report of Atterberg Limits

(IS : 2720, Part - 5)	Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bangalore
Contractor	B.B Umesh (S.M.L.P Asphalts)
Customer Reference	EE(PROJECT)/YNK ZONE/NO/172/2019-20
Source of Sample	Sample supplied by Agency
Sample Type	Soil-Atterberg Limits
Date of Test	30/12/2020

Determination No.		Liquid Limit				Plastic Limit	
		1	2	3	4	1	2
1	No Of Blows	18	24	28	35		
2	Container No.	S119	S120	S121	S122	S123	S124
3	Mass of Container (gm)	30.07	32.39	31.73	31.67	30.58	31.79
4	Mass of Wet Soil + Container (gm)	56.87	57.04	55.17	58.36	43.94	41.14
5	Mass of oven Dry Soil + Container (gm)	50.12	50.94	49.59	51.69	42.24	40.09
6	Mass of Water=(4-5) (gm)	6.75	6.10	5.58	6.67	1.80	1.05
7	Mass of oven dry soil =(5-3) (gm)	20.05	18.55	17.86	19.52	11.76	8.30
8	Water Content (w=6/7*100) (%)	33.67	32.88	31.24	30.07	13.61	12.65



Liquid Limit : Moisture Content at 25 Blows

Liquid Limit	32.24	%
Plastic Limit	13.13	%
Plasticity Index	19.11	%

Remarks :

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AARTN ASSOCIATES
The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Result of Free Swell Index

(IS : 2720 , Part-40)	Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client	Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.
Contractor	B.B Umesh (S.M.L.P Asphats)
Customer Reference	EE(PROJECT)/YNK ZONE/WO/173/2019-20
Source of Sample	Sample supplied by Agency
Sample Type	Soil-Free Swell Index
Date of Test	30/12/2020

S.No.	Description of Test	Readings	
1	Vol. of Soil Specimen in Distilled Water in cc (Vd)	11.8	12.1
2	Vol. of Soil Specimen in Kerosene in cc (Vk)	10	10
3	Free Swell Index in Percentage ((Vd - Vk) / Vk) x 100	18.00	21.00
	AVG (%)	19.50	

Note :

1. Take 10gm of each sample.

Remarks :

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Formate No: NSPR/QC/F 03

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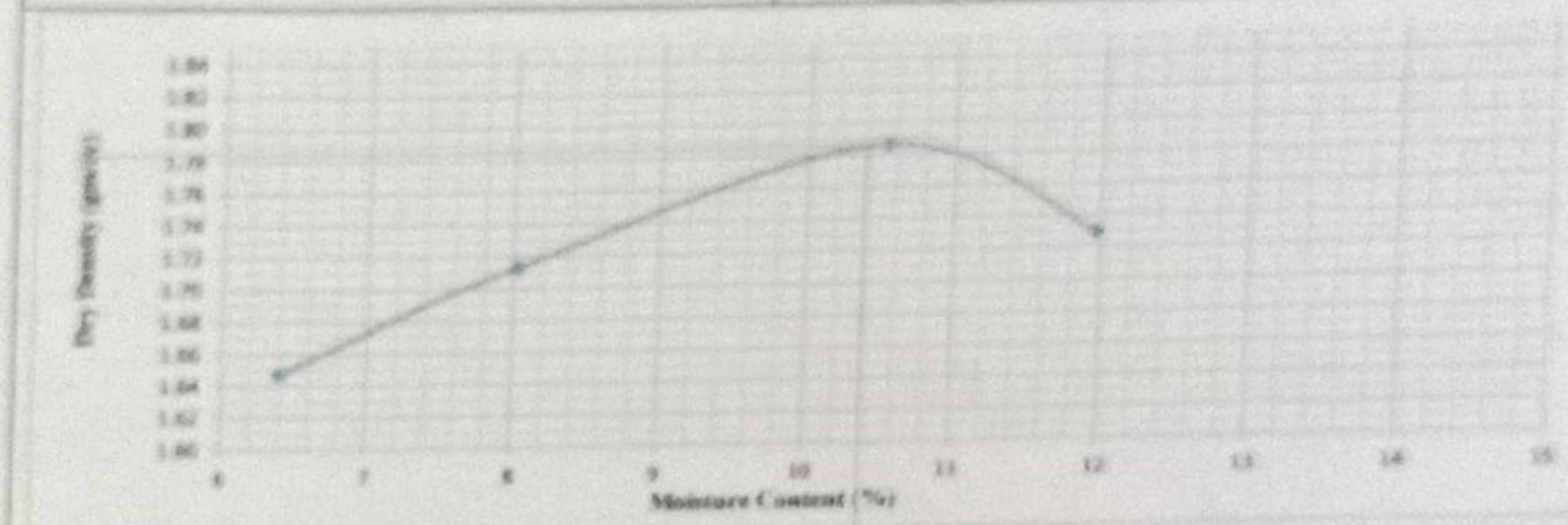
AARTN ASSOCIATES

The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Rolltobest Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8088505503 | Email : aartnassociates@gmail.com

Register no	Mould No.	Sample Taken			
Determination No	1	2	3	4	
Percentage of Water (more/less)	4	6	8	10	
Mould No.	3	3	3	3	
Volume of mould (V) cc	2260.43	2260.43	2260.43	2260.43	
Mass of mould (M1) gm	4140	4140	4140	4140	
Mass of mould+Compacted soil (M2) gm	8654	8954	10184	10192	
Mass of Compacted soil(M2-M1) M gm	4514	4814	6044	6052	
Wet Density of soil γ_w=M/V gm/cc	1.797	1.880	1.979	1.936	
Container No	S126	S138	S127	S128	
Mass of Container (gm)	32.72	37.89	33.23	35.30	
Mass of Wet Soil+Container (gm)	106.23	109.58	111.24	120.21	
Mass of Oven Dry Soil + Container (gm)	100.47	103.71	103.71	110.6	
Mass of Water (gm)	4.36	5.84	7.53	9.61	
Weight of dry soil (gm)	68.15	72.92	71.48	80.30	
Water Content (%)	6.40	8.02	10.53	11.97	
Dry Density of Soil (γ_d=γ_w/(1+w%)) gm/cc	1.647	1.713	1.798	1.729	



Remarks :

	From Graph		
	Maximum Dry Density (MDD)	1.785	gm/cc
	Optimum Moisture Content (OMC)	10.40	%

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Result of Field Density Test

IS:2720 (Part-28) | Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client		Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.					
Contractor		B.B Umesh (S.M.L.P Asphats)					
Customer Reference		EE(PROJECT)/YNK ZONE/WO/173/2019-20					
Source of Sample		Sample supplied by Agency					
Sample Type		Soil Field Density Test (FDD)					
Date of Test		30/12/2020					
MDD (gm/cc)		1.785					
OMC (%)		10.4					
Field Density		Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
Weight of soil from hole (Ww)	gm	11201	11326	11881	11686	11771	11621
Weight of Sand + Cylinder (W1)	gm	30000	30000	30000	30000	30000	30000
Weight of Sand + Cylinder after pouring (W2)	gm	19499	19414	19109	19149	19174	19284
Weight of Sand in Cone (W3)	gm	2257	2257	2257	2257	2257	2257
Weight of Sand in hole (W_b	gm	8244	8329	8634	8594	8569	8459
Unit Weight of Sand (Gs)	gm/cc	1.321	1.321	1.321	1.321	1.321	1.321
Volume of the hole (v)=Wb/Gs	cc	6240.73	6305.07	6535.96	6505.68	6486.75	6403.48
Bulk Density of Soil $\gamma = Ww / v$	gm/cc	1.79	1.80	1.82	1.80	1.81	1.81
Moisture content by RMM	%	10.5	9.66	10.4	9.66	10.7	10.4
Dry density of soil $\gamma_d = \{g /(1 + w / 100)\}$	gm/cc	1.62	1.64	1.65	1.64	1.64	1.64
Relative Compaction	%	0.9100	0.9177	0.9224	0.9177	0.9183	0.9209
% of Compaction required	%	0.918					

Remarks:

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The Modern Construction Solutions

#1059, MIG-A Sector, Opp. Railwheel Factory,
Yelahanka New Town, Bangalore - 64
Ph : 8048505503 | Email : aartnassociates@gmail.com

Test Result of Field Density Test

IS 2720 (Part-28) | Date: 30/12/2020

Name of Work : Comprehensive Development works in ward No. 03 Attur

Client		Bruhat Bengalore Mahanagara Palike (BBMP) , Yelahanka Zone, Bengaluru.					
Contractor		B.B Umesh (S.M.L.P Asphalts)					
Customer Reference		EE(PROJECT)/YNK ZONE/WO/173/2019-20					
Source of Sample		Sample supplied by Agency					
Sample Type		Soil Field Density Test (FDD)					
Date of Test		30/12/2020					
MDD (gm/cc)		1.785					
OMC (%)		10.4					
Field Density		Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
Weight of soil from hole (Ww)	gm	11156	11281	11836	11841	11726	11575
Weight of Sand + Cylinder (W1)	gm	30000	30000	30000	30000	30000	30000
Weight of Sand + Cylinder after pouring (W2)	gm	19452	19357	19082	19102	19127	19237
Weight of Sand in Cone (W3)	gm	2257	2257	2257	2257	2257	2257
Weight of Sand in hole (Wb)	gm	8291	8376	8661	8641	8616	8506
Unit Weight of Sand (Gs)	gm/cc	1.321	1.321	1.321	1.321	1.321	1.321
Volume of the hole (v)=Wb/Gs	cc	6276.31	6340.65	6571.54	6541.26	6522.33	6439.06
Bulk Density of Soil $\gamma = Ww / v$	gm/cc	1.78	1.78	1.80	1.78	1.80	1.80
Moisture content by RMM	%	10.2	9.8	10.6	10.2	10.5	10.8
Dry density of soil $\gamma_d = \{g /(1 + w / 100)\}$	gm/cc	1.61	1.62	1.63	1.61	1.63	1.62
Relative Compaction	%	0.9036	0.9078	0.9123	0.9047	0.9115	0.9060
% of Compaction required	%	0.908					

Remarks:

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